

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. - 11. (Canceled)

12. (Amended) The detector of claim [11]38, wherein the steel is stainless steel.

13. (Canceled)

14. (Original) The detector of claim 12, wherein the steel is 304 stainless steel.

15. (Original) The detector of claim 12 wherein:
the metal rod has a length between 0.25 inch and
12 inches; and
the metal rod has a thickness between 1/32 inch
and 3/8 inch.

16. - 19. (Canceled)

20. (Amended) The method of claim [[19]]39, wherein
the metal rod comprises 304 stainless steel.

21. - 28. (Canceled)

29. (Amended) The detector of claim [[28]]41, wherein
the elongated piece of metal comprises 304 stainless
steel.

30. (Original) The detector of claim 29, wherein:
the elongated piece of metal is connected to an
amplifier; and
the amplifier has an output that may indicate a
concentration of particulate matter in a
vicinity of the elongated piece of metal.

31. (Original) The detector of claim 30, wherein the
elongated piece of metal is situated in an exhaust
system of an engine.

32. (Amended) The detector of claim 31, further
comprising:

a processor comprising the amplifier; and

a plurality of sensors connected to the engine
and the processor; and

wherein the processor provides control signals to
the engine for affecting an amount of
particulate matter in the exhaust system.

33. (Original) The detector of claim 32, wherein the
control signals may affect fuel injection timing and
percent of exhaust gas recirculation of the engine.

34. - 37. (Canceled)

38. (New) A particulate matter detector comprising:

a spark plug having a center electrode;
a rod attached to the center electrode; and
a passivation layer formed on the metal rod; and
wherein:

the rod is a metal rod;
the metal rod is a steel rod; and
the passivation layer is oxidized steel.

39. (New) A method of making a particulate detector,
comprising:

obtaining a spark plug having a center electrode;

attaching a metal rod to the center electrode;

and

forming a passivating film on the metal rod; and

wherein:

the metal rod comprises stainless steel; and

the passivating film is oxidized stainless steel.

40. (New) A method of making a sensor, comprising:

forming an elongated piece of metal placing the
elongated piece of metal in an insulator;

forming a terminal connected to the elongated
piece of metal;

forming a thin film of insulation on the
elongated piece of metal; and

wherein:

the elongated piece of metal is stainless steel;

and

the film of insulation is formed by oxidizing the
stainless steel.

41. (New) A detector comprising:

a metal base;

an insulator situated in the metal base;

an elongated piece of metal situated in the insulator; and

an insulative film formed on the elongated piece of metal; and

wherein:

the elongated piece of metal comprises stainless steel; and

the insulative film is a forming of a passivating film from the stainless steel.

42. (New) A detector comprising:

a base;

a probe situated in the base; and

a passivating film formed on the probe; and

wherein the passivating film is formed from a material of the probe.

43. (New) The detector of claim 42, wherein:

the probe is connected to an amplifier; and

the amplifier has an output that may indicate a magnitude of charge of a concentration of particulate matter on the film of the probe.

44. (New) The detector of claim 43, further comprising:

a processor comprising the amplifier; and

a plurality of sensors connected to an engine and
the processor; and

wherein the processor provides control signals to
the engine for affecting an amount of
particulate matter in an exhaust system.

45. (New) The detector of claim 44, wherein the control signals may affect fuel injection timing and percent of exhaust gas recirculation of the engine.

46. (New) A detector comprising:

a supporting base; and

an electrode having a detecting portion and a
non-detecting portion; and

wherein:

the non-detecting portion is situated in the
supporting base; and

a passivating film is formed on all of the
detecting portion of the electrode.

47. The detector of claim 46, wherein the electrode is for detecting particulate matter, in a vicinity of the electrode, which has a charge and attaches to the passivating film.

48. (New) The detector of claim 47, wherein:
the electrode is connected to an amplifier; and
the amplifier has an output that may indicate a concentration of particulate matter in the vicinity of the electrode due to an input from the electrode of the charge of the particulate matter that attaches to the passivating layer.

49. (New) The detector of claim 48, further comprising:
a processor comprising the amplifier; and
a plurality of sensors connected to an engine and the processor; and
wherein the processor provides control signals to the engine for affecting an amount of particulate matter in an exhaust system.

50. (New) The detector of claim 49, wherein the control signals may affect fuel injection timing and percent of exhaust gas recirculation of the engine.